

Answers – Basic algebra

PAGE 1 1 a 5x b 3x c 9a d 3y e 10y f q g 14m h 8a i 17b j 6t k 12n l 8mn m 3p n 15xy o 4p p 6x² 2 a 8p b 10m c 10x d 5xy e 13y f 9k g 15xy h 7a i 13m j 9p k 21a l 4ab m 6x² n 11a² o 5x p y 3 a 7x + 9y b 8a + 7b c 19m + 8n d c + 3d e 15a - 5m f 5x² g 8x + 2y h 9mn i 8y + 2x j 3x + 3y k 8m + 13n l 3t + 9 m 13y + 4x n 3a + 9 o 12 - 5x p 3m + 5mn q 14m + 8n r 3x + y

PAGE 2 1 a 21a b 36ab c 20mn d a²b e -10x f 16m² g -12a² h 27m i 24b² j 5x² k 6ab l 12a²m m 24m²n² n 50p² o 30ab p 30m²n 2 a 3a b 8 c 2b d 5 e -2a f -2q g 4 h 3y i 2 j -9 k -x l -6 m 18 n -3 o c p 3b q $\frac{5}{4}$ r 4n 3 a 24a²b b 40x² c 6 d 45 e 60a² f 27m² g 2 h 10m i 18m j 4a k 42p l $\frac{2a}{q}$ m -1 n b o 80x² p 24a²b q 1 r 3x

PAGE 3 1 a x⁷ b n¹⁵ c q¹⁰ d a¹⁴ e 9p⁸ f x¹³ g 20x¹¹ h a⁵b i 100p⁸ j 12x⁷ k 54a⁷ l x⁹y⁵ m x¹⁶ n a⁵b⁵ o 36x⁶ p 8y¹⁰ q x¹⁴ r 30a³b² 2 a a⁴ b x⁴ c y² d 6x² e 2a² f 4m g 3n⁴ h a² i 3a² j a⁴ k k⁷ l p³q⁶ m 2a² n 2m⁴ o mn³ p p³q³ q a²n⁷ r 2ab 3 a x⁶ b y¹⁵ c a⁸ d m⁹ e k⁸ f x³⁵ g 8x⁹ h 27y⁶ i 625m¹² j 8x¹⁵ k 49p⁴ l a⁶b³ m a⁶b⁶ n x⁶y⁶ o m⁸n⁶ p 9x⁶y⁸ q 64x²y⁴ r 100a⁴b⁶ 4 a x⁹ b y⁶ c m¹⁰ d a⁵b⁸ e 125m⁶ f 36p⁹ g x¹¹ h a³ i 30a⁵b³ j 15a⁶ k 288m⁵ l 9a²b² m 12p³ n a⁴b³ o x⁶ p 8a³b³ q 2 r 9

PAGE 4 1 a 5a + 15 b 6x - 42 c -12 - 2a d -5x - 35 e 18a + 45 f 15x - 27 g 12a + 6a² h 2x² - 5x i 6m² + 3m j 5x² - 15x k 14n² - 21n l -3a² + 6a m -2a - 10 n -21p + 28 o 5a² - 5a p -6x² + 6x q -x - 9 r -4y + 7 2 a 9x + 15 b a - 30 c 6m - 12 d 5x + 1 e 4y² + 24y f 3m - 12 g 2x + 30 h 12x - 6 i 4m - 2 j 5m - 2 3 a 7x - 2 b 11m - 30 c 8p - 29 d 10x + 22 e 2x + 10 f x² + 3 g 3p - 28 h 5p² + 9

PAGE 5 1 a 24 b 4 c 18 d 29 e 6 f 120 g 15 h 19 i 58 j 43 k 68 l 35 2 a 17 b 45 c 32 d 9 e 5 f 20 g 49 h 4 i 125 j 100 k 4 l 150 m 8 n 21 o 18 3 a 8.9 b 14.7 c 3.1 d 15.6 e 90.5 f 42.3 g 75.9 h 13.8 i 3.7 j 3.7 k 2.7 l 1.5 m 79.2 n 3.8 o 2.4

PAGE 6 1 a 5(a + 1) b 8(x - 1) c 3(y - 1) d 2(x + 1) e 6(m + 1) f 7(m + 1) g 3(p + 2) h 4(q + 2) i 3(2x - 3y) j 4(x - 4) k 9(b - 2) l 5(a + 4) m 2(a + 3) n 3(m + 4) o 6(n - 4) p 8(x - 4) q 3(a + 5) r 2(a + 7) 2 a 3(a + b) b 5(m + n) c 6(p - q) d 7(a + 2b) e 3(l - 3m) f m(m + 7) g y(y + 6) h 9(x - 2y) i 3(a - 8b) j 4(x + y) k p(m - 3) l 8(x - 4y) m 6(x - 6) n 3m(1 + 4m) o y(5 - y) p 3(3x - 2) q 8(m - n) r 3x(2 - x) s 2x(x - 2) t 6p(q - 2p) u 10(x - y) 3 a -3(x - 2) b -5(x - 2) c -4(x - 2) d -6(x - 3) e -x(2 - x) f -6(a - 4) g -3(a - 4) h -4(a - 4) i -6(a + 2) j -4(y + 2) k -2(x + 5) l -4(2y + x) m -3(p + 3q) n -5(x + 5) o -(x + 5) 4 a 7(a + b) b 4(a - 5) c 9(x - y) d 3(m + 5) e 6(1 - t) f m(m - 4) g a(5b - a) h 7(m - 2n) i 2ab(4 - 3a) j -4(1 + 3a) k -3(1 + 5p) l -3(m + 2n) m 9(m - 4) n -4a(1 + 5a) o -(x + 7)

PAGE 7 1 a $\frac{2x}{5}$ b $\frac{2x}{3}$ c $\frac{2a}{7}$ d x e $\frac{m}{2}$ f $\frac{4x}{7}$ g $\frac{3a}{4}$ h $\frac{7y}{12}$ i $\frac{13a}{15}$ j $\frac{x}{2}$ k $\frac{7m}{6}$ l $\frac{31a}{24}$ 2 a $\frac{x}{7}$ b $\frac{p}{9}$ c $\frac{b}{3}$ d $\frac{m}{2}$ e $\frac{3x}{10}$ f $\frac{3p}{7}$ g $\frac{a}{12}$ h $\frac{-p}{9}$ i $\frac{3x-6}{10}$ j $\frac{-a+3}{6}$ k $\frac{5x-3}{12}$ l $\frac{-3y-2}{6}$ 3 a x b $\frac{x}{4}$ c $\frac{7x-2}{9}$ d $\frac{2p}{7}$ e $\frac{m}{5}$ f $\frac{5p}{6}$ g $\frac{2x}{7}$ h $\frac{3a}{5}$ i $\frac{11x}{12}$ j $\frac{a}{15}$ k $\frac{28a}{15}$ l $\frac{5a+5}{6}$

PAGE 8 1 a 2 b $\frac{5}{7}$ c 3 d 3n e l f 3y g $\frac{3a}{2}$ h $\frac{a^2}{3}$ i 1 2 a 2 b $\frac{3}{4}$ c $\frac{7}{3}$ d 4 e $\frac{5}{9}$ f $\frac{x^2}{y^2}$ g $\frac{3b}{2c}$ h 3b i $\frac{mq}{np}$ j $\frac{9}{5}$ k $\frac{7}{10}$ l 1 3 a 3p b $\frac{3}{4}$ c $\frac{5}{36}$ d $\frac{3n}{m}$ e $\frac{7}{16}$ f 5 g 2 h $\frac{3}{m}$ i $\frac{4}{xy}$ j b k $\frac{2}{m}$ l 2c m 3n n $\frac{b^2c}{a^2}$ o $\frac{y}{2}$

PAGE 9 1 2x + 3y 2 mn 3 $\frac{2x+y+3z}{3}$ 4 2x + 3 5 x + 1 6 x²m² 7 44 cm 8 32 cm 9 125 cm³ 10 2x + 4y 11 5x + 2 12 a 6x + 10 b 6x + 3 c 16x 13 a 4x² b 2x² - 3x c x(4x + 2) 14 \$7x 15 6p + 5q 16 40y cents

PAGE 10 1 A 2 C 3 D 4 A 5 B 6 D 7 C 8 D 9 B 10 B 11 B 12 B

PAGE 11 1 4a 2 9a²b² 3 16ab³ 4 a² 5 2a + 6 6 $\frac{5}{a}$ 7 x 8 2pq(p + 2q) 9 -11x + 39 10 y² + 2y - 8 11 $\frac{2x+3}{2}$ 12 $\frac{a^2b^2}{4}$ 13 $\frac{4x^2}{5y^2}$ 14 2a²b² 15 $\frac{9x}{10}$